



INFORMATION
SERVICES BOARD

Geographic Information Systems (GIS) Hydrography Data Standards STANDARD NO. 603-S1

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Approving Authority: Information Services Board

Also See: GIS Policy and Metadata 601-S1

1. Purpose

Hydrography data is a critical base data element used to support Washington State's mission of protecting the environmental quality of the air, land, and water resources of Washington state.

The objective of this standard is to designate a single, common hydrography data model for agency geospatial data, geographic information systems, and data exchanges. Geo-data that is built on common technical standards:

- Facilitates data exchanges for key datasets,
- Reduces staff time spent converting between differing alignments, route systems and measures,
- Minimizes error introduction brought on by the need to convert between differing alignments, route systems and measures, and
- Enables on the fly integration of distributed and separately maintained geo-datasets.

The standard is designed to improve data quality and accuracy, and simplify the exchange of hydrography data among state agencies, local, tribal, state, and federal users and producers.

2. Statutory Authority

RCW 43.105.041 details the powers and duties of the Information Services Board (ISB), including the authority to develop statewide or interagency information services and technical policies, standards, and procedures.

3. Primary Business Sponsors

Department of Ecology, Department of Fish and Wildlife, Department of Natural Resources, Department of Health, and Washington Geographic Information Council (WAGIC).

4. Scope

These standards apply to state of Washington executive branch agencies, agencies headed by separately elected officials, and institutions of higher education referred to as "agency or agencies" throughout this document. Academic and research applications at institutions of higher education are exempt.

5. Standards

The U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) shall be the data standard for all surface water (hydrography) geospatial datasets in Washington state.

The current published version of the National Hydrography Dataset (NHD) stewarded by the Washington Dept of Ecology (ECY) will be the official state version for linework, points, areas, stream routing, and NHD defined attributes representing surface water hydrography.

Agencies shall use the NHD for newly designed or significantly redesigned agency geographic information systems.

Agencies shall use NHD Data Dictionary that provides common structure to promote data sharing (http://nhd.usgs.gov/NHDv2.0_poster_6_2_2010.pdf).

The update frequency of the statewide published version of NHD will be determined by the Washington State Hydrography Steering Committee .

Each published version will be identified by a unique version number. ECY will make retired versions available for use by stakeholders for no less than 12 months from the date of retirement.

Under this standard, agencies may use alternative surface water conventions and structures provided:

- The agency maintains a version of hydrographic features which preserve spatial consistency with NHD geometry currently published by ECY.
- Any hydrographic variations introduced by the agency are posted to the USGS managed National NHD repository and made available in the next publication cycle.
- The agency maintains a version of hydrography related attributes for ISB-GIT defined significant geo-datasets which can be accurately mapped to the ReachCode routing system contained in the currently published ECY version of the NHD.

Recognizing that migration to this standard may require a significant amount of time and money, adherence to this standard by individual state agencies and organizations is subject to the availability of funding.

Until the state has funding to completely migrate, agencies may use alternative surface water conventions and structures provided:

- The agencies actively participate in the proposed shared governance model and openly communicate current and future strategies.
- When possible and as opportunities become available, agencies modify portions of their datasets to facilitate eventual migration to the NHD.

Geospatial Layers	State Standard	Owner/Primary Steward
Hydrography – all surface water features	National Hydrography Dataset (NHD)	USGS

5.1. USGS National Hydrography Dataset (NHD)

The NHD is a comprehensive set of digital spatial data representing the surface waters of the United States using common features such as lakes, ponds, streams, rivers, canals, and oceans. These data are designed to be used in general mapping and in the analysis of surface-water systems using geographic information systems (GIS). The NHD is a set of digital geospatial data that encodes information about naturally occurring and constructed bodies of water, paths through which water flows, and related entities.

The U.S. Geological Survey (USGS) is the owner and primary data steward of the NHD. USGS roles and responsibilities for maintaining the NHD are included in a Memorandum of Understanding between the Pacific Northwest Hydrography Framework (PNWHF) and the USGS. To review the MOU, go to <http://webhosts.cr.usgs.gov/steward/>, click on WA state, and then select the link to view the MOU document.

The NHD data model was designed to allow local stewards to improve upon the existing NHD and keep it continuously updated. Input from local stewards, knowledgeable about the hydrography in their local area, assures that the NHD is accurate, current, and meets the objectives of the user community.

5.2. Maintenance of the NHD as Washington State's Common Hydrography Dataset

Since the NHD is a national dataset used and maintained by many state, federal and local organizations, changes to the data can be made at many locations. Agreement by the appropriate local agency stewards is required before edits are made in areas where agencies may have land management or regulatory responsibilities. These agreements or Memorandums of Understanding are necessary to assure that stewardship responsibilities are recognized and respected prior to performing edits on the NHD. Current agreements for maintaining the NHD are included or referenced in the GIS Hydrography Data Standards Business Case.

5.3. NHD Datasets, Tools, and Support

The National Hydrography Dataset (NHD) is stored in a versioned geodatabase implementation of the NHD model. NHD data, tools, and technical support are available through NHD.

5.4. NHD Data

- Current NHD hydrography data for any location within Washington State is always available at <http://nhd.usgs.gov/data.html>.

5.5. NHD Tools

- NHD provides tools such as Reprojection, Event Management, and Network Builder .
General tools for use with the NHD are available at <http://nhd.usgs.gov/tools.html>.
- Tools dedicated to NHD maintenance are available to certified stewards at
<http://webhosts.cr.usgs.gov/steward>.

5.6. Technical support

- NHD Technical References
<http://nhd.usgs.gov/techref.html>
- Web-based customer support
<http://nhd.usgs.gov/techsupport.html>

6. References

- US Geological Survey (USGS)
<http://nhd.usgs.gov/index.html>
- PNW Hydrography Framework
<http://www.pnwhf.org>

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7. Document History

Date	Version	Editor	Changes
Aug 26, 2010	1.0	Paul Warren Douglas, DIS Rick Jordan, ECY Andrew Weiss, DFW Deborah Naslund, DNR	Initial Draft
November 4, 2010	1.1	Deb Naslund, DNR; Rick Jordan, ECY; Paul Douglas, DIS	Revisions to clarify standard language, miscellaneous minor edits
December 10, 2010	0.3	Joy Paulus	Minor edits for presentation to the ISB-GIT.
December 21, 2010	1.0	Joy Paulus	Assigned policy number and adoption date for presentation to the ISB.

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